**Katerina Poropat:** Good afternoon, everyone, and welcome to today’s webinar, Introducing the Victorian Curriculum: Digital Technologies F–6.

My name is Katerina Poropat and I am Project Manager in the Victorian Curriculum F–10 Unit here at the VCAA. It is my great pleasure to introduce you to the Curriculum Manager for Digital Technologies, Phil Feain, who will be leading our presentation today. I would also like to thank Alicia Farrell from the F–10 Unit, who has done a lot of the work behind the scenes to make this webinar possible today.

So, before we begin, we’ll start with an Acknowledgement to Country. I would like to acknowledge the traditional custodians of the many lands across Victoria on which each of you are living, learning and working from today. For myself and those of us in the Melbourne metropolitan area, we acknowledge the traditional custodians of the Kulin Nations. When acknowledging country, we recognise Aboriginal and Torres Strait Islander peoples’ spiritual and cultural connection to country and acknowledge their continued care of the lands and waterways over generations while celebrating the continuation of a living culture that has a unique role in this region. I would like to pay my respects to Elders past, present and emerging, for they hold the memories, traditions, culture and hopes of all Aboriginal and Torres Strait Islander peoples across the nation, and hope that will walk with us on our journey.

Just before we begin the presentation, I’ll briefly go over some housekeeping. Please note that the chat function is being used to share relevant information and links from the VCAA. You will notice that a Q&A box has been set up, so please put your questions and comments in here, as this will help us ensure all your queries are attended to. When you use the Q&A box, please make sure you select all presenters so that all panellists can see your questions as they come in. We will answer your questions in a few ways today. So, firstly, we may type a response directly into the Q&A box, which all participants will be able to view, or we have a couple of dedicated periods during and after the session where Phil will address these queries.

The second part of our housekeeping is to remind you that this session is being recorded. A copy of both the recording and the PowerPoint, plus the transcript, will be loaded onto the VCAA F–10 resources web pages under the professional learning section.

So, without further ado, Phil, I will throw over to you for our session.

**Phil Feain:** Thanks a lot, Kat.

Good afternoon, everyone, and welcome to the Introducing the Victorian Curriculum: F–6 Digital Technologies webinar.

Just change slides here.

So, the purpose of this webinar is to help you with understanding the structure of the Digital Technologies curriculum and to assist you with curriculum planning. Just looking at an outline of the session, we’ll cover the following points tonight – so, the aims of the curriculum, how it’s structured, where to find both curriculum documentation and support resources, and how to assess against the Achievement Standards.

So, let’s have a look at the aims of the Digital Technologies curriculum.

So, the aims are to ensure that students can design, create, manage and evaluate sustainable and innovative digital solutions to meet and redefine current and future needs. So, it’s about creating solutions. Use computational thinking and the key concepts of abstraction, data collection, representation and interpretation, specification, algorithms and development to create digital solutions. Apply systems thinking to monitor, analyse, predict and shape the interactions within and between information systems and the impact of these systems on individual societies, economies and environments. Confidently use digital systems to efficiently and effectively automate the transformation of data into information and to creatively communicate ideas in a range of settings. And apply protocols and legal practices that support safe, ethical and respectful communications and collaboration with known and unknown audiences.

Now, many of you may not have read the aims, but it’s important to get an overall sense of where the curriculum is evolving from. So, it comes from here, into the documentation we have further on.

Now, just to clarify a couple of things. We find there’s a difference in understanding between some of the terms that we have, not just within our curriculum, but also to Digital Technologies and ICT. So, the reason why we’ve got this slide is just to clarify each of these three terms for you.

So, Digital Technologies – that’s upper-case D and T – this is the curriculum. So, provides students with the opportunity to acquire and apply specific ways of thinking about problem-solving to create innovative, purpose-designed digital solutions. And it’s a way of analysing problems and precisely and logically designing solutions that can be understood and carried out through the use of programming languages. Design and systems thinking also contribute to the problem-solving approach in this curriculum. So, we like to talk about the Digital Technologies curriculum, about solving problems. OK? That’s the curriculum.

Now, you’ll also see, in different learning areas, the words ‘digital technologies’, lower-case, and that’s different again. So, digital technologies are the digital resources, such as tablets, notebooks, cameras, phones and data probes that allow data and information to be manipulated, stored and communicated. So that’s not the curriculum, though. OK?

And we also have ICT, and that’s embedded with all learning areas, or within all learning areas, and that involve students developing skills as confident users and consumers of digital systems.

Just to support you a little bit more with that, we’ve actually developed this poster, and that’s available on our website there at the link below. We’ve got one of these for F–6 and 7–10. And it’s to help clarify the differences between the Digital Technologies curriculum and ICT. So, it shows examples of Digital Technologies curriculum there on the left-hand side and ICT on the right side. And it was done to help teachers visualise the actual content, and the range of content across the strands in Digital Technologies, but also to see how that lines up with ICT, in a visual way, using infographics. So, these are A3-size posters, which you can download from our website.

So, in the aims, we touched on the ways of thinking. We’ll look at this a little bit further in detail over the next two slides. This is a really important part of the Digital Technologies curriculum and why the learning area’s so important to students.

So, Digital Technologies curriculum develops students’ thinking in the areas of computational thinking, design thinking, and systems thinking. This also links to problem-solving – we want our students to be able to solve problems. So, this involves them analysing a problem or a need, designing a solution to a problem or a need, developing the solution, and evaluating the solution to see if it met requirements. And this works well within the Creating Digital Solutions strand of the Digital Technologies curriculum.

Just breaking that down a little bit further. So, computational thinking involves decomposition. So, you get an overall problem, and you break that down into smaller problems to solve it. You organise data logically, and students will develop algorithms.

Design thinking involves generating creative and innovative ideas – so, they might be designing some mock-ups or some prototypes, etc – and analysing and evaluating these ideas against some sort of evaluation criteria to determine which ones are more suitable for the problem they’re trying to solve.

And systems thinking involves analysing the interactions and interrelationships between components, so hardware and software, devices – tablets, PCs, laptops, etc – and people.

So, I have a bit of a look at the structure and the components of the Digital Technologies curriculum for F–6.

So, hopefully, most of you are familiar with this page here. This is the Digital Technologies Curriculum web page. We have the link to this page at the top of the slide. On the left there are the details that are really important for teachers. Particularly if you’re a first-time teacher, or you’re not terribly familiar with the curriculum, we’d advise you to look at these components on the left – the rationale and aims, structure of the curriculum, learning in Digital Technologies, scope and sequence for F–10, links to resources, and the glossary.

You’ll see just above the word ‘Digital Technologies’ there we have the word ‘Levels’. When you click on Levels, that enables you to link to each of the bands in the curriculum and you can access content descriptions, elaborations and achievement standards there.

So, this is the Scope and Sequence document for F–10 for Digital Technologies. So, basically, this is the whole of our Digital Technologies Curriculum on one A3 page and, hopefully, you’ve seen this and used this before. If not, we have to link down the bottom there for you.

Just looking at the components. So, this is coming off the Digital Technologies Curriculum web page. These components are mostly on that Scope and Sequence document as well, except for the elaborations. So, we have the bands here – you can see Foundation to Level 2, Levels 3 and 4, Levels 5 and 6. We have the strands there – so, Digital Systems, Data and Information, and Creating Digital Solutions. And we have the content descriptions there in each of those strands. You’ll notice that there’s a little code in brackets, and that’s actually a link – when you click on that, you’ll go to the elaborations. And the elaborations are activities that could be completed as part of teaching the content descriptions to your students.

So here’s an example of a content description from Levels 3 and 4, in the Creating Digital Solutions strand. So, this is what students need to learn. So, when you see a content description like this, this is really what you want to be teaching the student. You develop lessons around this.

So, students need to be able to define simple problems and describe and follow the sequence of steps of decisions involving branching and user input – algorithms – needed to solve them.

So, now we have elaborations, and these link to the content description. So, click on that little code under the content description – these will come up in a window. So each content description has a number of elaborations and you can see five here with this example from the slide previously. The purpose of the elaboration is to provide you with some examples of activities to assist you with your planning for delivering this content description. Notice the range of activities here. You have -stating the nature of the problem, describing a sequence of steps, describing instructions, explaining instructions, and defining and describing the sequence of steps to incorporate multiple types of data into a solution. Now, one of the things about these elaborations is there are a number of them but you don’t have to be doing all of this. You don’t have to teach all of these.

OK. So here are the strands. So the strands represent the three different areas of the Digital Technologies curriculum. So we have digital systems. Digital systems focuses on hardware, software, networks, data and security. But that builds up between Foundation to Levels 2, through to Levels 9 and 10. We have data and information. That focuses on data collection, representation and management. And the third one is creating digital solutions. And that focuses on students solving problems, involving analysing, designing, developing and evaluating.

So the content descriptions enables students to progress from Foundation to 10 on a continuum, building upon their knowledge and learning within each strand as they go from band to band throughout the year levels.

So just showing you in relation to the scope and sequence document. So these are the content descriptions for digital systems from Foundation through to Level 10. They’re right at the top of the document. Notice there’s one content description in each band for a total of five all up. So it’s a very small strand overall.

Next we have the content descriptions for the data and information strand, and that’s just below the digital systems strand in the scope and sequence document. Notice there are 17 content descriptions all up in the strand from Foundation through to Levels 9 and 10.

And here are the content descriptions for the creating digital solutions strand in the middle of the scope and sequence document. So there’s 20 content descriptions in this strand all up from Foundation through to Levels 9 and 10. And you can see you have two in Foundation Level 2, then three, Levels 3 and 4, slowly building up to five. So the skills as students’ progress through the year level – more complexity, more knowledge that they need to build.

And below all of that we have the achievement standards. So, this is at the bottom of the scope and sequence document and the achievement standards are what you refer to for assessing student evidence of learning from the content descriptions that you are teaching them. We’ll talk to you more about achievement standards shortly.

Alright, so this is an example of how the content descriptions link to the achievement standards in the scope and sequence document for Levels 3 and 4. So you’ll notice that you can sometimes have one content description which will relate directly to one achievement standard. In some cases you’ll have two or three content descriptions which will relate to one statement in the achievement standards. So you can see there we’ve got the links from those different content descriptions from the three strands in Levels 3 and 4 and how they line up with the achievement standard for Levels 3 and 4.

So this slide shows an expanded view of the achievement standards for Foundation through to Levels 5 and 6. So each of the paragraphs in each band represent each strand. So what that means is in Foundation to Level 2, we actually have three paragraphs there. Each paragraph relates to one of the strands, and the same with Levels 3 and 4 and Levels 5 and 6. So the first strand relates to the achievement standards for digital systems strand. Second one is for the achievement standards for data and information strand. And the third paragraph is for achievement standards for the creating digital solutions strand.

So, one of the questions we often get is, “How do you assess against the achievement standards?” So put together a little example here for Foundation to Level 2. So, what we’ll look at is the achievement standard for digital systems. So we’ll have a focus on this particular strand and you want to teach that and you want to assess that. So the achievement standard extract is, “By the end of Level 2, students identify how common digital systems are used to meet specific purposes.” So that’s what you want to assess. The content description, which is what you want to teach students, says, “Identify and explore digital systems, hardware and software components, for a purpose.”

Now, we just so happen to have some resources which help with this. So looking at our resources, we’re looking at an idea for assessment here, for an assessment activity. And this is something teachers could use as an assessment activity themselves to assess this particular content description through the achievement standards. So, “A worksheet that enables students to identify and describe a range of hardware and software components for a number of digital devices.” So this is one way of meeting the achievement standard for that content description, for that achievement standard, for that particular strand out of the three strands for Foundation to Level 2. So of course there are also other ways of assessing it. You don’t have to just use a worksheet.

Now, one of the things when you start to think about how you’re going to assess, you might want to break down what sort of teaching and learning activities you want to have as well. So we’ve got some ideas for delivery of the unit there, but this is what you could teach your students. So you could introduce students to the components that make up a computer or digital system. So things like monitor, keyboard, printer, mouse, etc. And it could also be software. Hardware components are not just the only components. It could be operating system, word processing software applications, spreadsheet, etc. Students draw up a diagram of a known digital system from memory and label as many parts as they can. Introduce students to the difference between hardware and software components. Identify and explore different hardware and software components of a digital system. Develop a list of hardware components, software applications and operating systems. Students look around their home or school and record the different types of digital systems they find. For example, laptops, tablet devices, desktop computers, smart phones, printers, and robotic devices. Students choose two different digital devices and complete a Venn diagram listing the similarities and differences between their chosen digital devices. Two different devices could be a laptop and a tablet device. So there are a number of different ways of having students learn about a hardware component and software components that make up a digital system, and how they can identify and describe those components for enabling them to be able to be assessed in the achievement standard for that particular strand.

So I’ll go through some more resources that will help to assist you with this a little bit later on. So over the next few slides we’ll have a bit of a quick look at programming. I often include something on programming because this is where, over the last few years, you tend to get some questions around programming, what it looks like, because this is where sometimes teachers have a little bit less familiarity, particularly if they’re teaching digital technologies for the first time.

So visual programming sits within the creating digital solutions strand, and we’ll have a look at programming over the next couple of slides to give you some examples. So we have this slide here. So here are a couple of examples of visual programming at Levels 3 and 4, and Levels 5 and 6, using Scratch. So we know a lot of schools use Scratch. So the example at Levels 3 and 4 shows branching, also known as selection, using an IF statement in Scratch. The example at Levels 5 and 6 shows branching selection using an IF statement and around iteration or repetition using a repeat statement in Scratch.

So keep in mind that visual programming is also known as block-based programming. But it’s very different to general purpose programming or text-based programming, which comes in at Levels 7 and 8, and object-oriented programming, which comes in at Levels 9 and 10. So it’s about representing and creating visual programming, rather than text-based, or creating big buttons and they’re programming behind those buttons, as in object-oriented. So examples of a range of languages that you could use. Programs such as Alice, GameMaker, Kodu, Lego Mindstorms, MIT App Inventor, Scratch, Build Your Own Blocks and Snap. I think Scratch is the one that a lot of schools use.

Alright. So now we’ve had a bit of an overview of the structure of the curriculum, it’s time to think about curriculum planning using the resources we’ve developed at the VCAA over the last couple of years.

So understanding the terminology and using correct terminology within a learning area is really important to Digital Technologies. So we have a six-page glossary on the Digital Technologies Curriculum webpage and it’s available at that link at the top of the slide. So the glossary defines a list of terminology that is relevant to the learning area, and teachers are encouraged to make themselves familiar with this terminology. They’re really important because then you’re consistent with the use of the terminology as the students move into their next levels, the same consistent use of terminology as they move through school.

We also have two curriculum planning documents on our webpage to assist you. So, the first one is the curriculum or program planning templates. So these planning templates give examples of how to cover the content descriptions over the three-year planning cycle in F

2 or the two-year planning cycle in Levels 3 and 4 and Levels 5 and 6. So each of these link to the achievement standards, sample units that we’ve also created, and assessment tasks. And we have three samples for each band. So when you look at this, you could actually see we list some of the topics to be within the unit, where they’re going to be delivered within the semester, where they line up, the content descriptions there, where they line up with the achievement standards, and then down the bottom we break down the actual components of the unit and assessment and which achievement standards will be matched against it. So that helps you with planning towards delivering the curriculum for Foundation to Level 6.

To also help you to try and visualise where to fit the curriculum in, we’ve developed these curriculum area plans. So these are linked to the previous resource that we had on the previous slide. They provide a visual representation as to when the strands in the curriculum can be covered across the years in the band. And they also provide an idea of time allocation. We have three samples for each band here. Now, keep in mind different schools have different timetables and different approaches, so there is no one-size-fits-all here. That’s why we have three samples. But it’s also to give you a rough idea of where things could sit. So for example, here with Levels 3 and 4, the curriculum’s going to be covered over the course of these two years. We’re going to do digital systems over three weeks in semester one in Year 3, we’ll do data and information throughout a part of semester one and semester two in Year 3. And then in Year 4 we’ll do programming through part of semester one and into the start of semester two. So it gives you a rough idea about covering those strands over, might be one semester, it could be two semesters in a year level, or it might be covering across two year levels within the band. And again, the link to the resource at the top of the slide.

So once you have an overall plan of where digital technologies fits into your curriculum, it’s then time to consider what you want to do in your lessons. So keep in mind that your lessons are around meeting the content descriptions for teaching and assessing against the achievement standards.

So, firstly we have the unpacking content descriptions resource. So these were designed to provide a quick reference for teachers to understand how to link some lesson ideas and some sample activities to a range of content descriptions from F–10. So we’ve covered around half of the content descriptions within the curriculum with this resource. So if you look here we list the strand, the content description, we have an actual extract from the achievement standard that that content description is based on, a suggested focus for lessons, so some dot points there, and some sample activities. So, for example, some content descriptions, like algorithms there, you could use with a digital device for a plugged session. So you could have students using something like a Sphero or it might be something like a little car where you have push buttons to go a set number of steps and turn. Or it could be unplugged, so not using a digital device and it might be getting a student to move a set number of paces forward, turn left, set number of paces, turn right, etc. So it gives you a range of different activities that you could do in the classroom.

So next we have a new resource that we developed last year and these were created when we went into the period of remote learning in term two. So one of these resources is on plugged activities and the other is on unplugged activities. So each of these resources cover the majority of the content descriptions across F–10, with two plugged activities or two unplugged activities for each content descriptions. The idea was that teachers could have students working on these activities either at school or at home. So these were developed to support teachers with these activities so students could work on them during remote learning and therefore meet the Digital Technologies curriculum. And the link there to these resources are at the top of that slide.

So here’s an example of an unplugged activity from the data and information strand for Foundation to Level 2. Notice the practical nature of the activities and the students could complete these at home or at school. So, first one could be collecting data about family members’ or relatives’ or friends’ birthday months, draw a table with columns for each month and represent the birthdays as symbols or the relevant season. Or keep a list of the classes you study each day, assign a symbol or a letter for each class. For example, M for maths, or S for science. After two weeks, list each of the class for each day in a table, compare the data for each day over the two weeks, make some observations in relation to the data. So these activities meet the content descriptions directly and teachers can modify these activities or adapt as assessment tasks.

So here’s an example of a plugged activity from the creating digital solutions strand for Levels 3 and 4. So students could create a simple program using a visual programming language such as Scratch. And it could be to accept user input and display it as output to the user. “Create a simple program using visual programming language such as Scratch to create a response of true or false to a question.” OK? That is the practical nature of the activities and the variety of software tools students could use to complete at school or at home. So you can see the content description below. You could be using software such as Word, Pages or Google Docs.

Here’s an example of some unit plan ideas for Foundation through to Level 2 in digital systems. Notice we have ideas for classes and assessment. So we have there the achievement standard extract, the strand and the content description, ideas for the delivery of the unit, so what activities you could do. So we’re looking at one 60-minute lesson each week for four weeks. Week one – what is a computer? Week two – hardware and software components. Week three – digital system detective. And week four – an assessment activity. And we also have some suggestions for some assessment activities there. Then that links back to the curriculum area plan that we showed early on.

And so we’re at that point where we’ve covered the content, so thank you for attending this presentation. If you’ve got any further questions after this session, you can contact the F–10 Unit with those contact details, or you could contact myself with my contact details there.

So are there any more questions at this stage? Feel free to put them into the Q&A section and I’m happy to go through your questions. Yep, happy to take any questions.

**Katerina:** Just while we’re waiting, if any questions come through, I just want to take this opportunity to thank Phil for the fantastic session we’ve had today. I hope you’ve all taken a lot away from that and also a big thank you to Alicia for making this webinar possible today. So like Phil said, if anyone’s got any questions, please pop them in that Q&A box now. We’ll be sticking around for a little while.

**Phil:** Yeah, thanks, Kat. I think we had some through registrations earlier on. You don’t mind if I go through them now?

**Katerina:** Please do.

**Phil:** So we had a question, “How to integrate into curriculum not as a stand-alone subject?” So look, you can integrate some of the components of the curriculum with other learning areas like, for example, mathematics. So, some of the data and information, and maybe some of the algorithms. But I would also say you need to have components from Digital Technologies taught discretely rather than fully integrating it with other learning areas. Sometimes the things we see when schools are thinking they’re integrating it, they’re looking at other learning areas and when they see the words “digital technologies” in lowercase, they think that’s the actual Digital Technologies curriculum being done in that content description in that learning area, and it’s not. So you’ve just got to look at how you’re going to cover those components in the Digital Technologies curriculum within other learning areas so you’ve got consistency throughout all your teachers in those studies. So the students, by the time they get to the end of that band, they’ve actually got all of that knowledge.

There’s one other question there on how to upskill, empower teachers to integrate with the e-learning leader. I’m not too sure, but where I come from, e-learning leaders are often people involved in helping staff use things professional, like it might be tablet devices, laptops, use software, learning management systems, etc. But I think in terms of upskilling, you probably want to talk to whoever your curriculum leaders are and, particularly when you’re looking at Digital Technologies, skill sets are normally around things such as how you use software. So, can you put data into tables and format data and use a few functions around developing calculations, creating some charts and formatting those charts suitably? Getting skills in those areas is really important because we get students to be able to acquire data and visualise data. Also programming, being able to acquire some programming skills with visual programming language, and particularly online there are so many resources that you could point to, and actually online tutorials that you can build your skills with. So really important to be able to have a chat to your curriculum leaders about supporting you to get those skills.

Any other questions at all?

**Katerina:** We haven’t had any that have come through but, Phil, if you don’t mind going through the previous slide just with the contact details. If anyone has any questions, do feel free to get in touch if you think of something at a later stage and send it through to either Phil or the F–10 Unit and we’ll capture those questions as they come in. But as we don’t have any other questions that have come through, that brings us to the end of our session today and we would like to thank you again for attending and hope that you enjoy the rest of your day. Bye now.

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